Varun Panuganti

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Education

University of Washington Seattle, WA

B.S. ACMS: Data Science & Statistics; B.S. Informatics *Sep 2023 – Jun 2027*

GPA: 3.77 | **Coursework:** CSE 416 (ML), CSE 373 (DS&A), Data Structures, Statistical & Scientific Computing, Data Science Foundations

Experience

LLM Uncertainty Quantification (UQ) Oct 2024 – Present

University of Washington *Seattle, WA*

- Built CSV→prompt pipelines and a chained-LLM annotation flow with configurable confidence thresholds and token limits.
- Orchestrated scoring in Node.js/Express & Python; **improved confidence accuracy ∼90%** vs. baseline through prompt/runtime tuning.

Computer Science Instructor Jul 2024 – Apr 2025

ICODE *Sammamish, WA*

- Taught Java (OOP, recursion, DS&A) and mentored Python game teams on pathfinding/state machines; emphasized testing and Big-O.
- Guided VEX robotics builds with sensor-driven control policies; coached debugging and iteration practices.

Course Projects

CSE 416 — CIFAR-10 Image Classification PyTorch, CNNs, GPU — 2025

- Implemented CNNs (conv→ReLU→pool→dropout) with data augmentation and efficient loaders.
- Trained on GPU with early stopping and LR scheduling; tracked train/val curves and analyzed misclassifications to guide tweaks.

CSE 416 — House Prices (Tabular ML) scikit-learn, pandas — 2025

- Prepared data (imputation/encoding/scaling) and splits; established linear baselines and regularized models (Ridge/LASSO).
- Ran hyperparameter sweeps and validation curves; monitored RMSE to ensure generalization and avoid leakage.

STAT 534 — Bayesian Linear Models (Numerics) C/C++, LAPACK/LAPACKE, GSL — 2025

- Computed closed-form log marginal likelihood for $[1 \mid A]$ with stable solves and log-determinants on the log scale.
- Engineered portable builds (OpenBLAS/LAPACKE, GSL); validated results against an R baseline on `erdata.txt` (n=158, p=51).

STAT 534 — Logistic Regression Model Search (MC3) R, AIC/BIC, MCMC — 2025

- Built forward/backward subset selection with robust `glm` wrappers (convergence/NA handling) on a 60-feature dataset.
- Implemented MC3 over add/remove-one neighbors with neighbor-count–corrected MH; compared best models across 10 chains.

CSE 373 — Shortest Paths Finder Java, Graphs (Dijkstra/A*) — 2024

- Designed adjacency-list graphs and a binary-heap priority queue; implemented Dijkstra's and A* with admissible heuristics.
- Handled large graphs with careful PQ updates and parent-pointer reconstruction; analyzed $O((V+E)\log V)$ runtime and memory.

Technical Skills

Languages: Python, C/C++, Java, R, SQL, JavaScript/TypeScript, HTML/CSS
ML/AI: PyTorch, scikit-learn, pandas, NumPy, SciPy, Matplotlib, Jupyter
Stats/Numerics: BLAS, LAPACK/LAPACKE, GSL; optimization, log-sum-exp, numerical stability
Data/Systems: Git/GitHub, MPI; testing (JUnit/`pytest`), Linux CLI
Web: React, Node.js/Express, Flask